

REMARKS

The Final Office Action mailed February 22, 2010 (hereinafter, “Office Action”) has been reviewed and the Examiner’s comments considered. Claims 1-36 are pending in this application. Claim 8 is canceled without prejudice or disclaimer herein. Applicants submit that no new matter is introduced.

Objection to the Drawings

The drawings are objected to under 37 C.F.R. § 1.83(a). The Office Action states that “[t]he drawings must show every feature of the invention specified in the claims. Therefore, the ‘envelope’ mentioned in **claim 8** must be shown or the feature(s) canceled from the claim(s).” (Office Action, p. 2, emphasis in original). Without conceding the propriety of this rejection, in the interest of compact prosecution, claim 8 is canceled by this amendment. Applicants respectfully request entry of the amendment and withdrawal of the objection.

Claim Objections

The claims are objected to because of alleged informalities with respect to claims 2 and 35.

Regarding claim 2, the Office Action alleges that “figure of eight” is grammatically incorrect. Applicants respectfully disagree, but in any event the term “figure of eight” is clearly set forth throughout the specification as originally filed (*see, e.g.*, p. 7-8, paragraphs [0021]-[0022] of the published application). As such, Applicants submit that to maintain consistency between the specification and the claims, the term “figure of eight” should remain. Accordingly, Applicants respectfully request that the objection with respect to claim 2 be withdrawn.

Regarding claim 35, the Office Action alleges that the recitation “each of said closed loops having a periphery of a string of equal area lobes that are within said closed loops” is unclear. Applicants respectfully traverse this objection. The general concept of the claimed electrically-conductive closed loops is explained beginning on p. 7 of the instant application as originally filed (paragraph [0021] of the published application), as follows:

To take a very simple example, imagine a simple circular loop of conductive material, arranged in a plane transverse to an external time-dependent magnetic field. Eddy currents will be induced in the loop. However, imagine holding the loop at two diametrically opposed points, and then rotating one point through 180° relative to the other point. Out of the single loop in a given plane, one has created a figure of eight in the same plane, with portions of the single closed loop crossing over each other where the two lobes of the figure of eight have their crossing point. With the two crossing portions electrically isolated, so there is no short circuit at the cross-over point, imagine what will be the effect within the conductive material of the figure of eight loop, when exposed to the same external magnetic field. In both lobes, there will be a force to create eddy currents to flow in the "same" direction (clockwise, or anti-clockwise, depending on the direction of the magnetic field). However, were eddy currents to flow in the same direction in both lobes, they would meet "head-to-head" at the crossing point between the two lobes. Neither can flow, because they are equal and opposite, when the two lobes have equal area. Accordingly, no current flows. This principle holds true, no matter what the angle is between the plane of the loop and the direction of the incident time-varying electromagnetic field.

Realistic stent matrix structures designed using electrically-conductive closed loops are explained on page 9, first full paragraph (paragraph [0026] of the published application), as follows:

Turning now to realistic stent matrix structures, one can pursue the figure of eight idea into the formation of an implant from a plurality of closed electrically conductive loops, with each of these closed loops being made up of a string of lobes arranged in line and extending in that line along the length of the stent cylinder parallel to the axis of the stent cylinder. The lobes of this line are interspersed by cross-over points where the conductor of the loop crosses over itself when advancing from one lobe through the crossing point to the adjacent

lobe. One envisages that there will be electrical insulation between the two electrical conductors that cross over at each cross-over point. Evidently, the multi-lobe closed loop can be created by successive 180° rotations of one end of the loop relative to the other, and these successive rotations can be all in the same direction, or alternately in one direction and then the other direction to create successive cross-over points, or in some other format. Either way, using our "coloured paper" visualisation, the successive cross-overs produce alternate red and green lobes down the length of the stent.

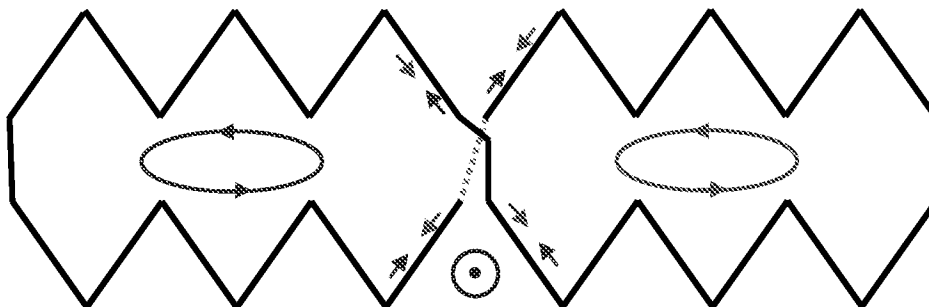
Thus, as set forth in the specification, a "string of equal area lobes" are included within one or more closed electrically conductive loops that comprise at least a portion of an exemplary stent matrix. Examples of lobes and loops are illustrated in FIGS. 4, 4A, 5, and 5A of the originally filed application. Accordingly, Applicants respectfully request that the objection with respect to claim 35 be withdrawn.

Claim Rejections – 35 U.S.C. § 112

Claims 4 and 8 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 is canceled by this amendment.

Regarding claim 4, the Office Action states that the recitation "cancelling remainder of lobes" is unclear. The Office Action asks further whether the canceling remainder of lobes is the same as "additional lobes," and whether "area bounded by the lobes" is an area between two sets of lobes or loops or between a canceling remainder and a cross over point. The Office Action suggests purportedly clear recitals for an amended claim 4, and also provides a suggestion for the inclusion of "current eddies." Applicants respectfully traverse this rejection.

Claim 2 recites "loop portions formed as a first lobe and as a second lobe of a figure of eight, further comprising a cross-over point between said first and said second lobe." A simplified illustration of such a configuration is as follows:



In this example, two adjacent cells (first lobe and second lobe) are joined at a cross-over point so that there is only one path for the currents. Thus, the eddy current induced in the left cell has to flow through both cells as must the one from the right cell (as indicated by the colored arrows). Because of the cross-over, the direction of the currents is opposite and there is complete cancellation.

Claim 4, which depends from claim 2, recites, “each of said loops has additional lobes and additional cross-over points between said additional lobes, with the areas bounded by the lobes being such that, in aggregate, the area bounded by one set of lobes equals the area bounded by a cancelling remainder of the lobes.” Thus, further to the first and second lobe of claim 2, additional lobes and cross-over points are recited such that the areas of lobes joined by the cross-over points are equal. Applicants respectfully submit that one of ordinary skill in the art could reasonably construe claim 4, and therefore claim 4 is not indefinite. Accordingly, Applicants request favorable reconsideration and withdrawal of the rejection of claim 4 under 35 U.S.C. § 112, second paragraph.

However, if the Examiner remains unconvinced in view of the remarks herein, Applicants are amenable to language similar to the suggested claim language on p. 3 of the Office Action,¹ if no other issues remain in the case following reconsideration.

¹ It is noted, however, that the phrase “...as additional first lobes and additional second lobes that are different from the first lobe and second lobe...” should be changed to “...as additional first lobes and additional second lobes that have the same area as the first lobe and second lobe...”

Claim Rejections - 35 U.S.C. § 102

Claims 1-5, 11-16, 18-21, 23, 25-29, and 32-36 stand rejected under 35 U.S.C. § 102(e) as anticipated by USPN 6,712,844 to Pacetti (hereinafter, "Pacetti"). Claims 1 and 6-10 stand rejected under 35 U.S.C. § 102(a) as anticipated by WO-03015662. The Office Action uses US 2004/0249440 to Bucker et al. (hereinafter, "Bucker") as a translation of WO-03015662. Accordingly, citations herein to Bucker are directed to US 2004/0249440. Applicants respectfully traverse these rejections.

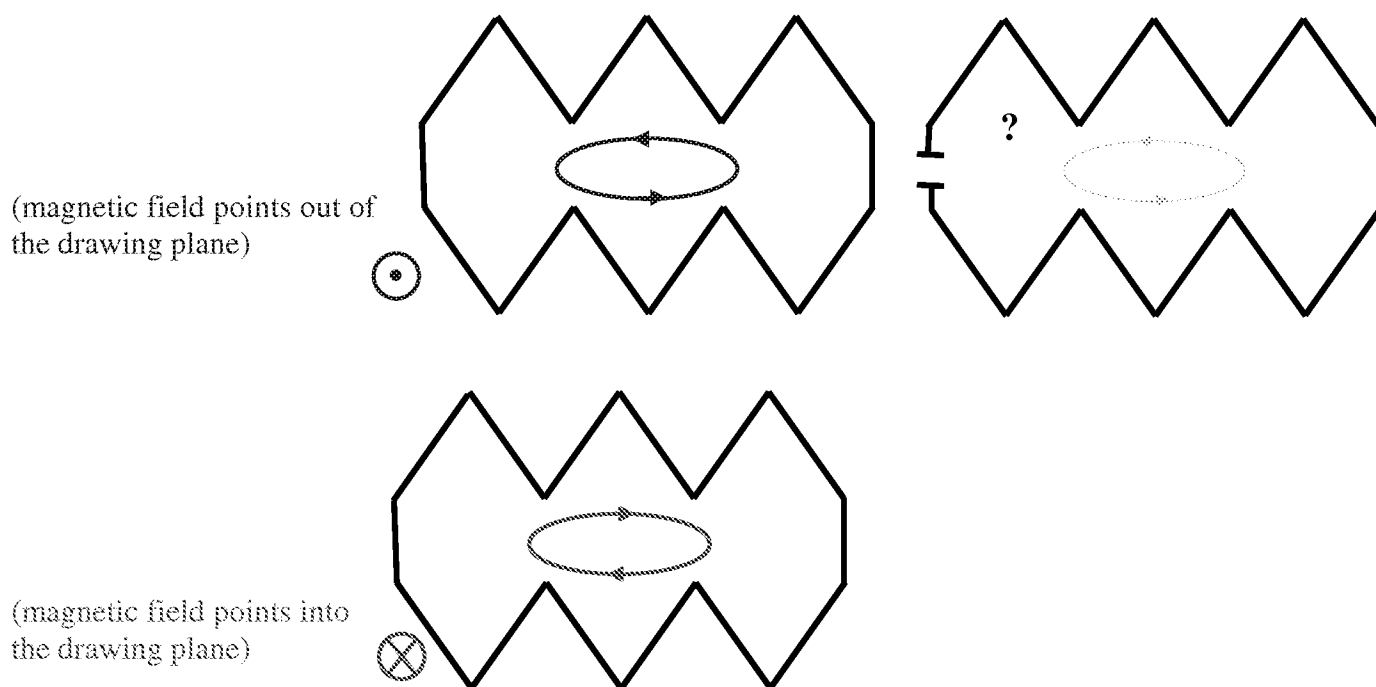
Pacetti

With respect to independent claim 1, beginning on p. 4 of the Office Action, the Examiner expresses disagreement with Applicants' remarks set forth in the Response dated December 3, 2009 (hereinafter, "Response"), initially taking issue with Applicants' explanation of the "point" of the Pacetti disclosure as being irrelevant to its alleged anticipatory relation to pending independent claim 1. Applicants' intention in explaining the Pacetti disclosure of discontinuities was to illustrate the stark difference with respect to the claimed invention, which requires "electrically-conductive closed loops" that include "a first current pathway and a second current pathway." In support of the maintenance of the anticipation rejection, the Examiner refers to FIG. 5 of Pacetti, as well as to Annotated Figure 5 on p. 8 of the Office Action. Applicants respectfully reiterate that Pacetti does not show each and every element of independent claim 1.

Regarding the claim element "closed loops," the Office Action cites to item 42, which is identified in Pacetti as an "aperture." As discussed in the Response, the presence of discontinuities necessarily prohibits the showing of closed loops as claimed, at least because the loops that are recited as having a first current pathway and a second current pathway with reverse induced eddy current directions are prohibited by the discontinuities of Pacetti. The Annotated FIG. 5 in the Office Action refers to a first current pathway and a second current pathway that are pointed in the *same* direction and are traveling along the *same* path. In view of the comments in the Office Action (i.e., "the directions of the current flowing will be opposite, due to nonconductive connectors present in the loop portion" (p. 9)), it appears that the Examiner finds that the discontinuities

themselves create the closed loops. However, the discontinuities cannot be the basis of separation between a first current pathway and a second current pathway, as claimed.

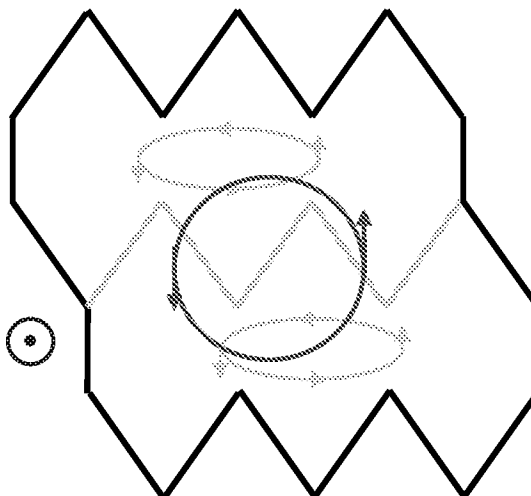
For example, the eddy currents that are induced in a stent cell depend on the orientation of the plane in which the cell lies relative to the magnetic field. Interrupting the conductive path in the cells with (electrical) discontinuities (of Pacetti) will greatly reduce eddy currents (demonstrated by the faint line in the cell with the “?” below).



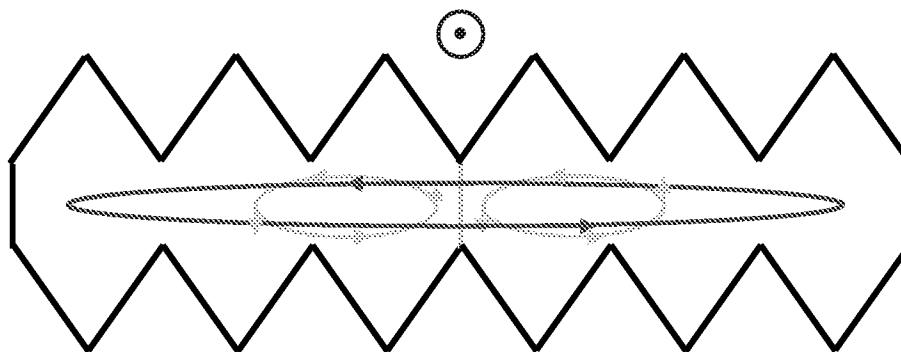
Adjacent stent cells that share borderline struts (see examples a) and b) below) have two independent paths where eddy currents can flow; however, the direction of the magnetic field is the same for both cells. Although the two eddy currents that flow through the struts shared by the two cells have opposite directions and will cancel out each other, so that no current is flowing through those borderline struts (drawn in a light shade, as they will have no influence), the currents flowing in the peripheral struts have the same direction and will not cancel out. The resulting eddy current can be thought of as the overlay of the two single currents or as one current being induced by the

magnetic field in the combined large cell that contains only the peripheral struts. Therefore, any electrical discontinuity in the common strut will have no beneficial effect on MRI behavior as alleged in the Office Action.

a)



b)



With respect to dependent claim 2, it appears from the Annotated FIG. 5 in the Office Action that the Examiner finds support for the claimed cross-over point in the shared strut between the alleged first lobe and second lobe. However, as set forth above, it should be clear that the cross-over point permits current flow along the same path for both lobes, which leads to the cancelation effect claimed (i.e., prevent flow of eddy currents in said loops). This feature is distinct from a mere shared strut of adjacent cells, as demonstrated above.

With respect to dependent claim 4, it should be clear in view of the discussion above that Pacetti does not show or describe the claimed feature of “additional lobes and additional cross-over points between said additional lobes, with the areas bounded by the lobes being such that, in aggregate, the area bounded by one set of lobes equals the area bounded by a cancelling remainder of the lobes.”

With respect to independent claim 35, the Office Action asserts that a tubular implant will inherently have a counterpart diametrically opposite, and that a counterpart lobe is not defined by any structural limitation so that it can be whatever structure is on the other side of the tube. (*See* Office Action, p. 5.) The Office Action further asserts that claim 35 does not “teach the limitation” of a plurality of closed loops that are electrically insulated from one another with a counterpart lobe diametrically opposite on the implant tube. Applicants respectfully disagree with these assertions.

First, the claimed feature of a lobe and counterpart lobe is certainly structural as shown and described in the application as originally filed (*see, e.g.*, FIGS. 4-5 and accompanying discussion), and as illustrated above. Moreover, the assertion that all tubular implants inherently have a counterpart lobe as claimed is false. Applicants concede that it is possible, even probable, that a tubular stent has counterpart features on opposite sides thereof. However, claim 35 requires more than merely a counterpart feature, reciting “each of said closed loops having a periphery of a string of equal area lobes that are within said closed loop, and every one of said lobes having a counterpart lobe located diametrically opposite on the implant tube.” Thus, the counterpart lobes are necessarily equal in area to the equal area lobes within the closed loop. It is axiomatic that Pacetti does not expressly show or describe the elements of claim 35. Nor would these elements be inherent in view of the Pacetti disclosure as Pacetti achieves the elimination or reduction in the Faraday Cage effect through numerous discontinuities in rings and/or cells (Pacetti, col. 4:55-5:3). As such, there is no reason to provide “a counterpart lobe located diametrically opposite on the implant tube.”

Second, claim 35 recites quite clearly that which the Examiner states is not taught. Applicants are unaware of a requirement that a claim “teaches” limitations that are recited. Perhaps the Examiner is referring to an apparent inconsistency in the claim. However, Applicants submit that closed loops, each having a string of equal area lobes with a counterpart lobe diametrically opposite on the implant tube is consistent, and is also shown and described in the application as originally filed. (*See, e.g.*, paragraph [0092] of the published application).

Accordingly, in view of the above, Applicants respectfully submit that Pacetti does not anticipate independent claims 1 or 35, or claims 2-5, 11-16, 18-21, 23, 25-29, 32-34 and 36 depending therefrom. Therefore, Applicants request favorable reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 in view of Pacetti.

Bucker

Independent claim 1 is not anticipated by Bucker at least because Bucker does not show or describe electrically-conductive closed loops, each of said loops including a first current pathway and a second current pathway, as claimed. In fact, Bucker states that the object of the invention is to provide an endoprosthesis having a configuration in which individual bars or wires are “so oriented along the longitudinal axis of the endoprosthesis that they form substantially no continuous electrical circuit. . . over the circumference of the endoprosthesis.” (Bucker, paragraph [0006], emphasis added.) The Office Action appears to acknowledge this point by noting that “because the endoprosthesis does not form a closed circuit, current will not flow.” (Office Action, p. 15.) However, if Bucker teaches no continuous electrical circuit, then it follows that Bucker does not show or describe at least electrically-conductive closed loops, each of said loops including a first current pathway and a second current pathway. Further, in view of the discussion above with regard to Pacetti, it is clear that Bucker does not show or describe the claimed feature of a direction of the eddy current in the second current pathway that is the reverse of the direction of the eddy current in the first pathway.

Accordingly, Applicants respectfully submit that Bucker does not anticipate independent claim 1, or claims 6-10 depending therefrom. Therefore, Applicants request favorable reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 in view of Bucker.

Claim Rejections - 35 U.S.C. § 103

Claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Pacetti in view of USPN 5,599,311 to Raulerson. Claim 22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Pacetti in view of USPN 6,176,875 to Lenker et al. Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Pacetti in view of US 2004/0122506 to Shanley et al. Claims 30-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pacetti in view of USPN 5,733,326 to Tomonto et al. Applicants respectfully traverse these rejections.

Without conceding the propriety of the combinations, or the allegations in the Office Action, Applicants submit that each of claims 17, 22, 24, and 30-31 are patentable at least because each depends from patentable independent claim 1, in view of the above. Accordingly, Applicants respectfully request favorable reconsideration and withdrawal of the rejections under 35 U.S.C. § 103.

Conclusion

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

It is noted that the remarks herein do not constitute, nor are they intended to be, an exhaustive enumeration of the distinctions between the cited references and the claimed invention. Rather, the distinctions identified and discussed herein are presented solely by way of example.

Consistent with the foregoing, the discussion herein should not be construed to prejudice or foreclose future consideration by Applicants of additional or alternative distinctions between the claims of the present application and the references cite by the Examiner and/or the merits of additional or alternative arguments.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-2191, under Docket No. 101671.0058P from which the undersigned is authorized to draw.

Dated: April 22, 2010

Respectfully submitted,

Electronic signature: /Todd W. Wight/
Todd W. Wight

Registration No.: 45,218
RUTAN & TUCKER
611 Anton Blvd, Suite 1400
Costa Mesa, California 92626
(714) 641-5100
Patents@Rutan.com